who studied these collections, added information; they also suggested queries, many of which, however, were vague and perplexing. The results thus accumulated formed, in 1789, four volumes, exclusive of a supplementary one. These were divided into sections, "Nai-hen" and "Gwai-hen," referring to those plants used in medicine for internal and external purposes respectively. Each of these two sections is again subdivided into four parts. The work was afterwards published, about 1835, by the order of the then Prince of Satsuma, of the province of Kiusiu, but appears to me to have been printed in Yédo (Tokio). The excellence of the illustrations throughout the work makes it easy for botanists to recognize the characters of plants which are represented in the work. To take an instance, it is interesting to learn in this work, that *Epimedium macranthum*, with its violaceous variety, is found in the Riukiu Islands.[1] There is additional interest in the illustration of a species of *Balanophora*, a genus of the order now known to occur from tropical parts of Asia to nearly 34° N. lat. of Japan, through Hong Kong and the Riukiu Islands; which I have lately treated elsewhere (Journ. Linnean Society, Bot., vol. xxiv.).

Now, to examine the Western literature of the flora before us. Though no small number of plants, recorded as indigenous to the Riukiu Islands, are mentioned in botanical literature,[2] the first compact exposition of the flora, drawn up under the careful examination of a number of specialists, is a memoir which appeared in the fourth and fifth volumes of *Engler's Botanische Jahrbücher*, published in 1883 and 1885 with the title "Beiträge zur Flora des südlichen Japan und der Liukiu-Inseln." This memoir, based principally upon the specimens collected by Döderlein and Tashiro in Ohshima, enumerates ninety-five species of plants from that part of the Riukiu Islands. Of these, three species are shown to be new, one of which, *Asplenium Döderleinii*, belongs to Vascular Cryptogams, while the remaining two, *Sceleria Döderleinii* and *Cinnamomum Döderleinii*, represent respectively Mono- and Di-cotyledons. Among these ninety-five species, sixty were previously known to occur in Japan, and also in other parts of Eastern Asia, the remaining thirty-five being unknown in Japan. Of these thirty-five species, sixteen are known to occur in China and the Indian Archipelago, seven in Australia, and the rest in Malacca, Ceylon, Himalaya, and other places. It must, however, be remembered that a Leguminous plant, *Lotus australis*, collected in the Riukiu Islands, though previously known in Australia, has not yet been discovered in any of the transitional regions.

Early in 1886, Maximowicz published, in the *Bullétin* of the Academy of Science of St. Petersburg, the sixth part of his work on the plants of Eastern Asia, which added no less than fifty species of Riukiu plants to those contained in *Engler's Jahrbücher*. The main portion of these plants were collected by Tashiro, who, working among other groups of the islands, made a preliminary contribution to our knowledge of the flora of Miyako-sima, a small isle lying in 45° N. lat. and 125° E. long. The new species here described from Riukiu Islands are eight, viz. *Euonymus Tashiroi*, *Galactia Tashiroi*, *Erythræa japonica*, *Anœctochilus Tashiroi*, *Premna staminea*, *P. glabra*, *Rhododendron Tashiroi*, and *Webera retusa*. The first five species are endemic to the Riukiu Islands, while the last three are found as well in the adjacent isles of Kiusiu, and in the Ogasawara Islands.[3] I may here remark that a new genus of Rubiaceous plant, established by Ahlburg (in *Bot. Zeitg.* 1878, p. 113), under the name *Aucubæphyllum Liukiuense*, which has remained doubtful, will probably be identified with *Psycotria elliptica*.

Lastly, Forbes and Hemsley's "Index Floræ Sinensis," which is intended to include all plants known in China proper, Corea, and their adjacent islands, but excluding Japan, does nevertheless embrace the flora of Riukiu Islands within its scope. As only the first two parts of this important work have made their appearance, it will perhaps be better not to draw any conclusion at present; still it may be of some interest to point out that we are now practically furnished with our first knowledge of the specimens of plants collected in the Riukiu Islands by Charles Wright and a few other botanists, and deposited in those two great botanical store-houses, the Kew Herbarium and the British (Natural History) Museum.

We cannot but feel how imperfect is our knowledge of the flora of the Riukiu Islands. We should attach much importance to its further investigation. For careful examination of the southern group of the Riukiu Islands will probably bring out, to some extent, the relations between the floras of China and Japan, and between those of the latter and the Philippine Islands, the Indian Archipelago, and perhaps even that of Australia. It will be understood that this southern group of islands, known as Yayeyama, which is situated about 24° N. lat. and between 123° and 124° E. long., remains as yet absolutely uninvestigated. The Yayeyama group consists of nine isles—namely, Ishigaki, Iriomoté, Taketomi, Kobama, Hatoma, Kuro-shima, Arakusuku, Hateruma, and Yonakuni; besides which there are three smaller ones—Uchi-Hanaré, Soto-Hanaré, and Kayama-shima, the two latter being the only uninhabited isles in the group. Hateruma, which is situated in 24° 4′ N. lat., is known as the southern extremity of the Japanese Empire. We rejoice to be able to state that our friend, Y. Tashiro, who had previously made some important collections of the plants of the Riukiu Islands, has, by the commission of the Japanese Government, lately extended his researches to this Yayeyama group, where he resided during 1885 and 1886. We hope that the collection resulting from his incessant labours will be intrusted to competent hands, and that an adequate account of it will soon be published.

Cambridge. TOKUTARO ITO.

NOTES.

AN interesting collection of specimens has just been received at the Natural History Branch of the British Museum, Cromwell Road, from Emin Pasha. They were despatched from Wadelai in November last, *viâ* Zanzibar, through the kind assistance of Mr. Mackay, of the Church Missionary Society in Uganda, and have arrived at their destination in good condition. The collection consists of skins of birds and mammals, butterflies, and some anthropological objects, and, when worked out by the officers of the Museum, will be described in detail at one of the meetings of the Zoological Society during the ensuing session. In a letter received a few days ago by Prof. Flower, dated Wadelai, April 15, Emin Pasha speaks of a further consignment of specimens (chiefly ethnological), as being ready for despatch to the Museum on the first opportunity.

IN 1884 Mr. John Ball, F.R.S., published a paper in the Journal of the Linnean Society (vol. xviii. pp. 203–240) giving the first comprehensive account of the flora of North Patagonia. This was based on a collection obtained from him during his travels in South America from M. Georges Claraz, a Swiss gentleman who had passed several years chiefly at Bahia Blanca. Mr. J. L. Williams-Andrews has now sent to Kew a beautifully-preserved collection made by him in the same region during the years 1881–85. The excellence of the specimens is the more remarkable as the majority of them have travelled more than six hundred miles on horseback. Mr. Williams-Andrews writes to Kew :—"The Indians are certainly a very fast-decreasing race, and at the present day cannot exceed two thousand in number. The combs, or rather brushes, mentioned [by Mr. Ball in his paper, p. 225] are formed of a species of very tough grass, not of roots. The use of vegetable dyes is also rapidly dying out amongst them, though they still make a considerable quantity of textile fabrics, of which I have numerous examples ; the same is to be said of their silver ornaments." Vice-Consul Goodhall, of Bahia Blanca, has taken much trouble to obtain information about the plants used by the Indians for dyeing purposes. He has unfortunately failed in obtaining any trustworthy specimens, as "the Indians are most jealous about affording any information on the subject." Mr. Ronald Bridgett, Consul at Buenos Ayres, has sent to Kew some articles dyed by the Indians, in which the greens and yellows are native dyes made from roots and plants. These have been sent to the Chemistry and Dyeing Department of the Bradford Technical College. A number of Indian ornaments, also obtained by Mr. Consul Bridgett, have been forwarded to the Ethnographical Department of the British Museum.

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[1] Up to the time of the publication of my paper on the "Berberidaceæ of Japan" (Journ. Linn. Soc. 1887, vol. xxii.), I found that no one had collected specimens of this plant in the Riukiu Islands.

[2] Hooker and Arnott's "Botany of Beechy's Voyage" contains some account of the plants collected in the Riukiu Islands.

[3] Generally known as the Bonin Islands, which is probably a corruption of *Munin*-jima, *i.e.* destitute of man, another Japanese name for the islands.

A HIGHLY ingenious modification of Cowper's writing telegraph has been shown at the American Exhibition, by Mr. J. H. Robertson, an American electrician. The movement of a pen at the sending station varies the resistance of two electric circuits along which two currents are flowing. These varying currents act upon two coils at the receiving station so as to impart motion in two directions to a pen filled with ink, so that the resultant motion of this pen exactly reproduces the movement of the writing pen at the sending station. Mr. Robertson has replaced Mr. Cowper's resistance coils by a series of thin carbon disks, which vary their resistance with variation of pressure, as was discovered by Edison and utilized in his carbon telephone transmitter. He has also improved the receiving portion, and has made the apparatus very practical. It is being commercially worked out in the United States, and we shall watch its progress with much interest. It forms a really beautiful system of written messages, and is decidedly simpler than any previous system of facsimile telegraphy. It is very doubtful whether there is a demand for such a system, for the operation is necessarily slow.

THE session of the International Hygienic Congress at Vienna was closed on Sunday, when it was finally decided that the next session should be held in London in 1891. The meetings were remarkably successful, and did much to enlighten the public as to the nature of the questions which are now being discussed by students of hygienic laws. On Wednesday, September 28, interest was centred chiefly in the Third Section, where the circumstances under which cholera is disseminated were considered. Prof. Max Gruber, of the Vienna University, who gave an account of the incidents of cholera in Austria during the years 1885 and 1886, stated that he could find no evidence of water having played any part in disseminating the disease during that period. He believed that cholera was disseminated by human intercourse, and this experience, he said, coincided with that of English observers. On the other hand, Dr. Spattuzzi, of Naples, attributed the absolute immunity from cholera enjoyed by Naples during 1885 and 1886, and the comparatively small extent of the disease during the present year, to the excellent water supply provided in 1884. Prof. Pettenkofer made some interesting statements on the influences which, in his opinion, locality and season have on the spread of cholera. In support of his views he referred to experiences in India, where each province has its own time of year when the disease is more prevalent, but he also freely admitted the effects of pilgrimages and fairs in spreading the disease. In the course of the debate Prof. Pettenkofer again took occasion to pay a high tribute to England for the measures adopted for the prevention of cholera ; and M. Proust, of Paris, expressed himself in the same sense. Thursday was devoted to excursions and the visiting of public institutions in Vienna. On Friday Sir Douglas Galton, who presided over the First Section, offered some valuable remarks on the treatment of infectious fevers. He showed that in London much had been done by the system of isolating small-pox and scarlet-fever patients quickly, by taking them to a ship-hospital, or to hospitals remote from dwelling-houses. "But it is most undesirable," he added, "that in these isolated hospitals too many patients should be concentrated in one ward. The principle should be smaller wards, of four to six patients at most, and great simplicity of construction with ample aëration." Sir Douglas expressed the opinion that the bodies of patients who die of infectious fevers should be burned, and in this view he was supported by Sir Spencer Wells, who said that the good done by giving the people pure air and water, wholesome food, and proper dwellings must to a large extent be counteracted by the continual presence of thousands of putrefying bodies in and around centres of population. On Saturday much interest was excited by the proceedings of the Third Section, when the question of preventive inoculation against rabies was discussed. At the final meeting on Sunday morning the usual votes of thanks were passed, and Prof. Ludwig, the President, said that all the objects of the Congress had been attained. Dr. Roth, of London, expressed a hope that the "protectorate" of the next Congress would be undertaken by the Prince of Wales.

SIR SPENCER WELLS was entertained at a grand banquet on Friday evening last by some of the leading surgeons and professors of Austria-Hungary and by a deputation of the younger surgeons and students. Only one toast was given—that of "The Guest of the Evening." It was proposed by Prof. Breisky, who said that he and many others present were indebted to the teaching of Sir Spencer Wells for much of their success. Replying to this toast, Sir Spencer Wells spoke of the changes which have taken place in surgery during the last thirty-five years, and of the great results accomplished by wise sanitary legislation. "If," he said, "we had in England full power, a competent Minister of Public Health, and an efficient staff of health officers and engineers, the present death-rate of London—that is, 19 in a thousand—might certainly be reduced to 14, or probably to 12."

MR. F. A. BATHER AND MR. G. W. GREGORY have been appointed assistants in the Department of Geology of the British Museum (Natural History), to fill the vacancies caused by the resignations of Mr. William Davies and Mr. Robert Etheridge, Junior.

ON Saturday last the foundation-stone of the Walker Engineering Laboratories in connexion with University College, Liverpool, was laid by Sir James Poole, Mayor of the city. Sir A. B. Walker's original gift to the institution was a sum of £15,000, but Sir James Poole was able to announce that Sir Andrew had generously increased the amount to £20,000.

BY his will, dated August 5, 1887, Mr. Richard Quain, F.R.S., who died on September 15, has bequeathed almost the whole of his fortune, amounting to about £75,000, to University College, London, subject to certain annuities to family connexions. The College will at once benefit to the extent of about £60,000. The annual income is to be applied to "the promotion and encouragement in connexion with University College, London, of general education in modern languages (especially the English language and composition in that language) and in natural science." The trustees, Lord Justice Fry, Sir William Jenner, Mr. George Brodrick, the Warden of Merton, and Sir George Young, are authorized to carry out the testator's wishes either by salaries "or other payments to those who teach, as by endowing professorships, or by pecuniary aid to those who are being taught, or by endowing scholarships, or fellowships, or in any other manner which the trustees may in their absolute discretion think proper," and they are requested to place themselves in communication with the Council of University College with a view to preparing a scheme for carrying out the objects of the bequest. The testator desires that in any statement of the foregoing bequest the name of his brother, the late Sir John Richard Quain, shall be associated with his name.

A SEVERE shock of earthquake was felt throughout Greece at 1 o'clock on Tuesday morning, the 4th inst., the strongest disturbance being on the northern and southern shores of the Gulf of Corinth.

MR. D. NUTT will publish shortly a new and thoroughly revised edition of Brenicker's "Logarithms, with Supplementary Tables of Natural Functions and Circular Measures of Angles to each Minute of Arc," by Prof. Alfred Lodge, of Cooper's Hill College.

MESSRS. MARCUS WARD AND CO. will issue in a few days "Teneriffe and its Six Satellites," a new work of travel in two volumes by Mrs. Olivia M. Stone, author of "Norway in June." Together with a narrative of wanderings through the seven inhabited islands, Mrs. Stone gives an historical account of the past race of inhabitants, and she draws attention to the value of the archipelago as a health resort. She has also something to say about the flora, and tables of temperature are appended.

THE third scientific voyage of Prince Albert of Monaco, in his schooner, the *Hirondelle* (200 tons), terminated at the end of August, when the vessel came back to Lorient. The Prince was accompanied by Prof. Pouchet, who made a special study of currents; and by M. Guerne, whose work was zoological. Leaving early in June, they went to the Azores, where three weeks were spent in dredging, &c. A newly-captured sperm-whale was examined. The fauna of the lakes at the bottom of craters was studied by M. Guerne. The Gulf Stream was then crossed, and a thousand of the Prince's floats were thrown out. At St. John's, Newfoundland, researches were continued. The vessel was then directed northward along the coast, but bad weather put an end to the project. In returning to Europe the party encountered a violent storm, in which grave damage was averted by the use of oil. The voyage is considered a great success. A noteworthy feature of it is the carrying on of productive and difficult dredging operations entirely without steam.

EXPERIMENTS have been recently made on the Seine, in the stoppage of steamers in motion, by means of a "cable-anchor" invented by M. Pagan. This is a cable having on it a series of canvas cones, which open out by the action of the water, and close again when drawn in the opposite way. The steamer *Corsaire*, running 13 knots, was stopped each time by the apparatus in seven or eight seconds, and in a space of 26 to 30 feet at the most. For comparison, the steamer, running full speed, was stopped in the usual way, by reversal of the engines. This took at least thirty-four seconds, and the space was 350 to 360 feet. It would thus appear that M. Pagan's apparatus effects the result in less than a tenth of the space, and a fourth of the time, of the ordinary method.

IN clinical practice it is often desirable to be able to measure in a simple and direct way the speed with which nerve-impressions are conveyed. An electric chronometer for this purpose by Dr. D'Arsonval, is described in a recent number of *La Lumière Électrique*. An axis with small terminal plate is driven round uniformly by clockwork, making one turn per second. Opposite the plate is another plate connected with the axis of a pointer on a dial. These axes are independent while a current passes through a small electro-magnet holding the second plate; but when this current ceases, a spring brings the latter in contact with the moving plate and the pointer is carried round till the current flows again. The patient to be examined having shut his eyes, the doctor applies to a part of the body a simple instrument which by this application breaks circuit, so that the pointer begins to travel. The patient is required, immediately on feeling the pressure, to press a button, which makes the circuit again, and the pointer stops. The interval can then be determined in hundredths of a second. The velocity of sensations in different parts of the body can thus be compared very rapidly. It is proved that different sensations (pressure, heat, pricking, cold, electricity, &c.) are transmitted with different velocity, and some diseases abolish some while exalting others, &c.

PROF. MUSHKETOFF'S account of his explorations in the Caspian steppes contains some interesting remarks on the work done by marmots (*Spermophylus eversmanii*) in the modification of the surface of the steppe. They made their appearance in the region only a few years ago, but their heaps of earth already cover hundreds of square miles. Like earthworms, they must therefore be regarded as a factor of some importance in modifying the surface of the soil. Their heaps of earth have an average length of 3½ metres, and a width of 2½ metres, with an average height of from 30 to 50 centimetres, and it was found that on each 2 square metres there were no less than five, seven, or even eight heaps, each of which represented at least 2 cubic metres of earth removed. It may be safely asserted that on each square kilometre of surface no less than 30,000 cubic metres of earth have been brought to the surface owing to their activity. Their influence on vegetation is also well worthy of notice.

AT a recent meeting of the Paris Biological Society, M. Mégnin gave an account of a peculiar disease which is very prevalent at present among hares in Alsace. It is a parasitic disease, a sort of pulmonary tuberculosis, caused by the presence, in the lungs, of *Strongylus commutatus* (*Filaria pulmonalis* of Frölich). The same disease was noticed in Thuringia in 1864.

AN introductory lecture at St. Mary's Hospital was delivered on Monday last by Mr. A. Critchett, Ophthalmic Surgeon to and Lecturer at St. Mary's Hospital. Speaking of the studies in which he himself is chiefly interested, Mr. Critchett said he was old enough to remember the introduction of the ophthalmoscope by that great teacher and thinker Helmholtz, who, he rejoiced to say, yet lives to witness the priceless boon which his discovery has conferred upon the human race. It was difficult for those who are now familiar with its use to conceive the wondering eagerness with which the original workers sought, by the aid of their new weapon, to bring to light those numerous hidden diseases of the eye which had till then been only partially and most imperfectly recognized. Numerous modifications of the instrument have since been introduced, and among the most recent and most useful improvements has been the ingenious adaptation of the electric light to the ophthalmoscope by Mr. Juler. After alluding to the labours of his late father, of the venerated Nestor of English ophthalmic surgery, Sir William Bowman, and of the much lamented Von Graefe, the lecturer reminded his hearers of the colossal work which had been achieved by Prof. Donders, who had opened out a new world for thought and investigation, and had elevated the study of practical optics to the dignity of a science.

A REMARKABLE series of experiments upon the synthesis of water by weight is described by Dr. E. H. Keiser in the current number of the *Berichte* of the German Chemical Society, in which not only has a known weight of oxygen in the form of copper oxide been employed, but has also been made to combine with an actually weighed quantity of hydrogen. In the well-known experiments of Dumas it will be remembered that an indefinite quantity of hydrogen was employed, the loss of oxygen by the copper oxide and the weight of water formed furnishing the only data obtainable by the then possible experimental methods. But Dr. Keiser has succeeded in weighing his hydrogen by taking advantage of its peculiar property of being occluded by the metal palladium; it is shown that a piece of palladium 100 grammes in weight will readily take up between 0·6 and 0·7 grammes of hydrogen, when heated in a stream of the gas to about 150°. The palladium-hydrogen compound formed is perfectly stable at ordinary temperatures, and may be preserved unchanged in a vessel filled with hydrogen gas; but on heating this *quasi*-alloy the gas is slowly driven out again, and by weighing before and after the heating, the weight of hydrogen expelled may be accurately determined. This weighed quantity of hydrogen gas was then passed over heated copper oxide, and the weight of water formed determined in the usual manner. But Dr. Keiser has gone further than merely synthesize water by the most direct means possible, he has refined the process so far as to be enabled to employ it as a direct means of determining the atomic weight of oxygen. The minutest precautions were taken against error, and the purification of the hydrogen carried out in a most thorough manner, with the unexpected result that the atomic weight of oxygen is most probably slightly lower than 15·96 and more nearly 15·87. It is interesting to be reminded that Dumas states in his memoir:—"Of all analyses, that of water involves the most uncertainty. It is true that one part of hydrogen combines with eight parts of oxygen to form water, and nothing could be more exact than the analysis of water, if one were able to weigh the hydrogen and the water formed by its combustion. But the experiment is not possible in this form." However, owing to the ingenuity of Dr. Keiser, this happy result has now been achieved.

THE *Times* of September 22 contained an interesting account of the Troglodyte remains in Southern Morocco. The difficulties placed in the way of exploration in Morocco have prevented an examination hitherto of these remains. The Troglodyte caves are situated near Ain Tarsil, a village some three days' ride to the south-west of the city of Morocco, near the borders of the province of Haha. At the village the scenery undergoes a complete change. Instead of the dreary plains one comes across curious hills divided by great ravines, not unlike the cañons of California, in one of which is situated the strange city of the Troglodytes. The gorge is a narrow one, the cliffs on either side rising almost perpendicularly from the bottom of the deep valley; after progressing some little way along this valley the first caves are sighted. They are cut in the solid rock at a great height from the ground, and are in some places single, in others in tiers of two or three, one above the other. The entrances are small, varying from 3½ to 4½ feet in height and about 3 feet in breadth. In places where the rock has fallen away the entrances are faced with masonry of a neat and orderly type, and in one or two cases where the natural formation of the rock necessitated exceptionally large entrances this masonry served also the purpose of dividing the door into two parts, one of which no doubt served as a window. As to the means of access to these caves, the writer discusses three theories, all possible, but one alone of which is probable. The first is that the face of the cliff has since the formation of the caves been worn away by wind and water, and so crags and projecting pieces of rock that once rendered access possible have disappeared; secondly, the Troglodytes may have been so active as to be able to get up perpendicular smooth rock; the third, that they used ropes and ladders. He dismisses the first as unjustified by anything we know of Morocco, and inconsistent with the existence of various tiers of cliffs; and as to the second, although it is stated that these cave-dwellers were swift of foot as a horse, the shape of the cliff renders climbing an impossibility. The walls of rock are perfectly smooth from the bottom to the height of the caves, which is 200 to 300 feet in many cases, and it is only in a few places that there are ledges sufficiently wide for birds of prey. In favour of the ladder theory there is the circumstance that in the doorways of many of the caves there still remains, a few inches above the floor, and crossing from lintel to lintel, a bar of wood some six inches in thickness, which must have acted as a roller for ladders. The freshness of the wood is surprising, but in the Karli Caves in the Western Ghauts there is a roof which is considered by experts to be coeval with the caves themselves. The writer was able to enter the caves in only one or two cases, a landslip having built a pile of earth and stones that rendered access possible. Passing through the low, narrow doorway, the visitors found themselves in an oblong room 15 feet by 7, leading from which at either end were smaller chambers. The wall of the larger room adjacent to the cliff was pierced with three windows; each of the smaller ones also possessed a window. The walls were rough, but the floor and ceiling were well smoothed and cut. The height of each was about 5 feet 2 inches. In no cases were bones discovered, only a little broken pottery and one or two doubtful flint-heads alone being found. No doubt much greater success will await the explorer who manages to overcome Moorish prejudice and bigotry, and by means of ropes and ladders enters the upper tiers of caves which have lain in their present state since the old race died out or took to more rational abodes. The Troglodytes cannot have been such savages as they are usually considered: their excavations are hollowed out skilfully, and their abodes show signs of great labour and some idea of care and comfort.

THE additions to the Zoological Society's Gardens during the past week include two Macaque Monkeys (*Macacus cynomolgus*) from India, presented by Miss Barker; two Arctic Foxes (*Canis lagopus*) from the Faroe Islands, presented by Mr. T. Nordenfelt; a Macaque Monkey (*Macacus cynomolgus*) from India, presented by Mr. R. Taylor; a Corn-crake (*Crex pratensis*), British, presented by Mr. Howard Bunn; a Ring Dove (*Columba palumbus*), British, deposited; a Sumatran Wild Dog (*Canis javanicus* ♀) from Sumatra, purchased; a Wedge-tailed Eagle (*Aquila audax*) from Australia, received in exchange; a Mule Deer (*Cariacus macrotis*), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

FLAMSTEED'S STARS "OBSERVED BUT NOT EXISTING."—Prof. C. H. F. Peters, in a paper published in vol. iii. of the Memoirs of the National Academy of Sciences of Washington, has discussed Flamsteed's observations of the twenty-two stars which, it will be remembered, Baily, in his "Account of the Rev. John Flamsteed," entered in a list with the above heading, which, as he explains, means stars "of which the observations appear to be accurately recorded, but which still cannot now be found in the heavens." As the disappearance of so many stars in comparatively so short an interval of time appeared to Prof. Peters to be rather improbable, it seemed to him to be desirable that these cases should be scrutinized with the additional means of identification provided by the *Durchmusterung*, which of course was not available at the time of Baily's publication. Acting, then, on the assumption that some otherwise plausible error in Flamsteed's entry of his observation which leads to a modern star-place is to be held much more reasonable than the vague acquiescence in a supposed disappearance of the star, Prof. Peters considers that (making allowance for the probable error of a position in Flamsteed's Catalogue) he has succeeded in finding for every case at least a probable explanation. One of the observations in question—that of the object No. 1647 in Baily's "Flamsteed"—turns out to have been an observation of the planet Uranus, an explanation which was suggested by Argelander but rejected by Baily. The agreement, however, of the position of the object observed by Flamsteed with the place of Uranus computed from Newcomb's Tables is so close as to leave no doubt of its identity.